

REMARKS**I. Summary of Office Action**

Claims 1-77 were pending in the application.

Claims 1-2, 4, 6-10, 12, 18-25, 28-30, 32, 34-38, 40, 45-49, 52-55, 57, 59-60, 65, 70-74, and 77 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,310,883 to Clifton et al. (hereinafter, “Clifton”) in view of U.S. Patent Publication No. 2001/0006403 to Crocitti (hereinafter, “Crocitti”).

Claims 3, 5, 11, 15-17, 31, 33, 39, 43-44, 56, 58, 61-64, and 68-69 were rejected under 35 U.S.C. §103(a) as being unpatentable over Clifton in view of Crocitti and U.S. Patent Application Publication No. 2002/0188592 to Leonhardt (hereinafter, “Leonhardt”).

Claims 13-14, 41-42, and 66-67 were rejected under 35 U.S.C. §103(a) as being unpatentable over Clifton in view of Crocitti and U.S. Patent No. 4,310,883 to McMurdie (hereinafter, “McMurdie”).

Claims 26, 50, and 75 were rejected under 35 U.S.C. §103(a) as being unpatentable over Clifton in view of Crocitti and U.S. Patent Publication No. 2003/0079084 to Gotoh (hereinafter, “Gotoh”).

Claims 27, 51, and 76 were rejected under 35 U.S.C. §103(a) as being unpatentable over Clifton in view of Crocitti and U.S. Patent Publication No. 2003/0050729 to Basham (hereinafter, “Basham”).

II. The Rejections Under 35 U.S.C. §103 and the Independent Claims

Applicants have amended claim 1. Claim 1 recites a method of operating a data processing system, the system including one or more application programs requiring persistent data storage for data files of application data, a plurality of physical storage devices each accessible via a computer network to one or more computers executing the application programs, and a broker program, wherein the method includes:

receiving, using the broker program, a request from an application program for storage of a data file of application data of the application program, the request including an expiry date set by the application program, beyond which the data file is no longer required and may be deleted; and

selecting, using the broker program, for the data file which one of the plurality of physical storage devices will be used to store the data file in accordance with the characteristics of the application data to be stored, including the expiry date set by the application program, and the state of the plurality of physical storage devices.

For at least the reasons provided below, Applicant respectfully submits that no combination of Clifton and Crocitti teaches or suggest the combination of features recited in claim 1.

A. No Combination of Clifton and Crocitti Teaches or Suggests A Request Received From an Application Program of a Data File Including an Expiry Date

Claim 1 requires “a request from an application program for storage of a data file of application data of the application program, the request including an expiry date set by the application program.” On page 2 of the Office Action, the Examiner acknowledges that Clifton does not disclose any of these features. The Office Action submits however that these features are disclosed in Crocitti.

However, **Crocitti does not teach or suggest these claimed features.** Crocitti does not teach or suggest a request including an expiry date originating from an application program. Instead, in Crocitti, “the date of expiry or the duration of validity is provided either by the service provider, upon the storage request, or by the user who decides to keep a given information item only for a desired duration or until a date fixed by him.” (Crocitti, par. 28).¹ Thus, no combination of Clifton and Crocitti teaches or suggests, for example, “a request from an application program for storage of a data file of application data of the application program, the request including an expiry date set by the application program” as required by claim 1.

Crocitti’s deficiencies are not surprising because instead of being directed to “a data processing system” “comprising one or more application programs requiring persistent data storage for data files of application data,” as recited by claim 1, Crocitti is **merely directed to**

¹ Indeed, Crocitti’s only discussion of specific applications is in paragraph 19. This section mentions that the television receiver memory may store applications such as interactive services or games, and that these may require configuration or personal parameters to be stored either to access the service, or to personalize the graphical interface the service provides. **Crocitti does not teach or suggest that these applications use expiry dates at all, let alone that they result in “a request from an application program for storage of a data file of application data, the request including an expiry date, beyond which the data file is no longer required and may be deleted,” as recited by claim 1.** This is not surprising, because the applications of Crocitti are games where the memory may need to store the high scores for the various players. It is not clear why such applications, or indeed the users of such applications would wish to specify expiry dates for data that is needed on an on-going basis.

on-going use of a limited memory resource to accommodate user requirements for games and services.

Accordingly, Applicants respectfully submits that claim 1 is allowable.

B. No Combination of Clifton and Crocitti Teaches or Suggests Storage Based on Expiration on a "File-by-File" Basis

Because of Clifton's admitted deficiencies (e.g., not teaching selection of a storage device based on expiry dates for data files), **Clifton cannot teach or suggest**, for example, "selecting, using the broker program, for the data file which one of the plurality of physical storage devices will be used to store the data file in accordance with the characteristics of the application data to be stored, including the expiry date set by the application program, and the state of the plurality of physical storage devices," as recited by claim 1. The Office Action relies on Crocitti to remedy the deficiencies of Clifton.

However, regarding the use of expiry dates, **Crocitti merely describes a process for managing memory in a television receiver** in which an information item is stored in one of various storage mediums based on space and processing speed requirements, and in which, if sufficient space is not available for the information item, then the storage mediums are reorganized and already stored information items which have past their expiration dates are deleted to make room for the new information item. (Crocitti, par. 28-48). Crocitti's system includes two or three different memories (i.e., memories 21 and 22 and/or 23) and software modules for managing the information items stored in the memories (i.e., processes module 11, reorganization and optimization module 12, and evaluation module 13). In Crocitti, processing module 11 receives "each information storage request" and performs a comparison of the information item (from the request) and the storage means based on "characteristics of the storage means (21, 22, 23) relating in particular to the available space remaining on the various storage means and the processing speed." (Crocitti, par. 28, emphasis added). If the information item can be stored "without erasing or shifting the information already stored" then the information is stored. If, however, there is not sufficient space, then reorganization module 12 is executed to make space. Reorganization module 12 then "analyses the usage of the storage space of each storage means (21, 22, 23) so as to assign each information **already stored** a

storage space.” (Crocitti, par. 30, emphasis added). During the reorganization, reorganization module 12 also deletes information items which expired expiry dates. (Crocitti, par. 30).

Thus, **Crocitti fails to describe selection of data storage means based on an expiry date of a file**, let alone “selecting, using the broker program, for the data file which one of the plurality of physical storage devices will be used to store the data file in accordance with the characteristics of the application data to be stored, including the expiry date set by the application program, and the state of the plurality of physical storage devices,” as recited by claim 1. Indeed, the expiry dates of Crocitti are not for selecting “which one of the plurality of physical storage devices will be used to store the data file,” as recited by claim 1. Instead, they are **merely for deleting already stored information items** which are no longer required to make room a new information item for which storage space is required.

Crocitti’s deficiency of not teaching or suggesting the use of a data file expiry date for selecting “which of the plurality of storage devices will be used to store the data file” is not surprising because instead of being directed to “a data processing system” “comprising one or more application programs requiring persistent data storage for data files of application data,” as recited by claim 1, **Crocitti is merely direct to on-going use of a limited memory resource to accommodate user requirements for games and services.**

In summary, Clifton does not teach or suggest a data file expiry date. **Crocitti, alone nor in combination with Clifton, neither teaches nor suggests a data file expiry date used for selecting “which one of the plurality of physical storage devices will be used to store the data file.”** At most, a combination of Clifton and Crocitti would teach or suggest a system and method for assigning data sets to virtual volumes where data items could be deleted upon expiry if required to make room for a new data item that is to be stored. Because no combination of Clifton and Crocitti teaches or suggests, for example, “selecting for the data file which of the plurality of storage devices will be used to store the data file in accordance with the characteristics of the application data to be stored, including the expiry date, and the state of the plurality of storage devices,” as recited by claim 1, Applicants respectfully submit that the combination of elements recited in claim 1 is allowable, when interpreted as a whole.

C. One of Ordinary Skill in the Art Would not have Combined the Teachings of Clifton and Crocitti & In Any Event, Such a Combination Would Not Have a Predictable Outcome

Crocitti's goal is to solve problems related to the "limited storage capacity" of storage means of television systems (Crocitti, par 3). In contrast, Clifton's goal is the management of data sets in large mass storage systems. For at least the reason of being in different fields and having different goals, **one of ordinary skill in the art would not combine the teachings of Clifton with those of Crocitti**. Even assuming, for the sake of argument, that one of ordinary skill in art would have combined Crocitti and Clifton, Crocitti's work in the field of endeavor of television receiver service and game memory management would not have prompted variations of it for use in Clifton's field of mass storage data set management based on design incentives or other market forces because the variations would not have been predictable to one of ordinary skill in the art. Crocitti's system which "lies in the domain of television", (Crocitti, par. 19), and is implemented in a television receiver (Crocitti, claim 1) **could not be predictably combined** with Clifton's "mass storage system" including a "mass storage facility," (Clifton, col. 1, ll. 37-38).

For these reasons also, Applicants respectfully submit that claim 1 is allowable.

D. Conclusion

Accordingly, Applicants respectfully submit that claim 1 is allowable and respectfully requests the withdrawal of the rejections to the same.

III. Independent Claims 28, 29, 52, 54 and 77

Like claim 1, independent claims 28, 29, 52, 54 and 77 recite request for data storage received from the application program itself in respect of a data file and including an expiry date, set by the application program, for the data file. Accordingly, Applicants respectfully submit that claims 28, 29, 52, 54 and 77 are allowable and respectfully request the withdrawal of the rejections to the same.

IV. Select Dependent Claims

A. New Claims 81-86

Applicants have added new claims 80-85. New claim 81 recites a method according to claim 1, “wherein the selecting of which one of the plurality of physical storage devices will be used to store the data file comprises selecting a storage device based on an amount of free space available in the storage devices so that a selected physical storage device is filled as soon as possible. Claims 81-86 recite elements similar to those of claim 81. Applicants respectfully submit that claims 81-86 are allowable.

B. Claims 6, 34, and 59

Claim 6 recites a method according to claim 1, including: “storing, for each storage device, the latest expiry date of data files stored on that device, or of data files that are to be stored; and permitting application data to be stored on a storage device if its expiry date is within a predetermined range of the latest expiry date; such that application data with similar expiry dates can be stored together and when such similar expiry dates have passed the storage device can be erased and re-used.” The Office Action relies on Clifton to teach or suggest the elements recited by claim 6. However, because, **as the Office Action admits, Clifton does not teach requests in respect of data files of an application**, Clifton cannot teach or suggest, for example, “permitting application data to be stored on a storage device if its expiry date is within a predetermined range of the latest expiry date; **such that application data with similar expiry dates can be stored together** and when such similar expiry dates have passed the storage device can be erased and re-used.” Clifton merely teaches dates as related to “data sets” and does not teach or suggest, nor could it be combined, with systems or methods that store “application data with similar expiry dates ... together” based on the data files of applications data each being associated with its own expiry date. Nor does Crocitti teach or suggest, storing “application data with similar expiry dates ... together.” Crocitti, teaching nothing related to grouping files by expiry date. Instead, Crocitti’s expiry dates are merely for deleting already stored information items which are no longer required to make room a new information item for which storage space is required. (Crocitti, par. 28-48). Because neither Clifton nor Crocitti teaches or suggest storing “application data with similar expiry dates ... together” no combination of Clifton or Crocitti could do so. Claims 34 and 59 recite elements similar to those of claim 6. Applicant

respectfully submits that claims 6, 34, and 59 are allowable and respectfully requests that the rejections to these claims be withdrawn.

C. Claims 8, 36, and 61

Claim 8 recites a method according to claim 1, including storing for each of the storage devices a target expiry date, and selecting which of the storage devices to use in dependence on a comparison of the expiry date and the target expiry date. Clifton, merely teaches expiry dates in respect to data sets and does not teach or suggest using expiry data of data files for selecting which of the plurality of storage devices will be used to store the data file, let alone, “**selecting which of the storage devices to use in dependence on a comparison of the expiry date and the target expiry date.**” Crocitti, teaching nothing related to selecting “which of the storage devices to use in dependence on a comparison of the expiry date and the target expiry date. Instead, Crocitti’s expiry dates are merely for deleting already stored information items which are no longer required to make room a new information item for which storage space is required. (Crocitti, par. 28-48). **Accordingly, no combination of Clifton nor Crocitti teaches or suggests, for example, “selecting which of the storage devices to use in dependence on a comparison of the expiry date and the target expiry date,”** as required by claim 8. Claims 36 and 61 recite elements similar to those of claim 8. Applicant respectfully submits that claims 8, 36, and 61 are allowable and respectfully requests that the rejections to these claims be withdrawn.

D. Claims 27, 51, and 76

Claim 27 recites a method according to claim 1, including monitoring the status of the storage devices, detecting when new storage devices have been added, and making these available for storage. The Office Admits that than “Clifton, as modified by Crocitti does not explicitly disclose” the elements recited by claim 27. Instead, the Office Action relies on Basham to teach or suggest these elements. However, **Basham merely relates** to “data storage drives of an automated data storage library which **stores portable data storage cartridges in storage shelves and transports the portable data storage cartridges between the storage shelves** and the data storage drives for mounting and demounting the portable data storage cartridges at the data storage drives, and, more particularly, to the allocation of those data storage

drives.” (Basham, par. 002). As part of Basham system in which drives can be configured, Basham states that “a physical drive may be added, deleted or replaced and the reconfiguration begun at step 101.”

Crocitti’s work in the field of endeavor of television receiver service and game memory management would not have prompted variations of it for use in Clifton’s field of mass storage data set management based on design incentives or other market forces because the variations would not have been predictable to one of ordinary skill in the art. Crocitti’s system which “lies in the domain of television”, (Crocitti, par. 19), and is implemented in a television receiver (Crocitti, claim 1) could not be predictably combined with Clifton’s “mass storage system” including a “mass storage facility,” (Clifton, col. 1, ll. 37-38.) **Neither would Basham, which is directed to a system that and transports the portable data storage cartridges between the storage shelves and the data storage drives for mounting and demounting, be predictably combined with either Crocitti or Clifton, let alone both of them.** (Basham, par. 002). Even assuming, for the sake of argument, that one of ordinary in skill in art would have combined Crocitti, Clifton, and Bashram, Crocitti’s work in the field of endeavor of television receiver service and game memory management and Clifton’s work in the field of mass storage data set management, would not have prompted variations of a combination of Crocitti and Clifton in Basham’s field of transportation of portable data storage cartridges in storage shelves based on design incentives or other market forces because the variations would not have been predictable to one of ordinary skill in the art. Crocitti’s system which “lies in the domain of television”, (Crocitti, par. 19), and is implemented in a television receiver (Crocitti, claim 1) and Clifton’s “mass storage system” including a “mass storage facility,” (Clifton, col. 1, ll. 37-38), could not be predictably combined with Basham’s data storage library which stores portable data storage cartridges in storage shelves and transports the portable data storage cartridges between the storage shelves and the data storage drives for mounting and demounting the portable data storage cartridges at the data storage drives.

V. All Dependent Claims

Each of claims 2-27, 30-51, 53, 55-76, and 81-86 depends from one of claims 1, 28, 29, 52, 54 and 77 and is thus allowable for at least the same reasons as the claim from which it

depends. In addition, each of the dependent claims patentably distinguishes over the Office Action rejections based on the combination of limitations in each dependent claim, when each claim is interpreted as a whole. Accordingly, Applicants respectfully request that the rejections to claims 2-27, 30-51, 53, and 55-76 be withdrawn.

Conclusion

Applicant respectfully submits that, as described above, the cited prior art does not show or suggest the combination of features recited in the claims. Applicant does not concede that the cited prior art shows any of the elements recited in the claims. However, to the extent Applicant has discussed specific elements of the claims, Applicant has merely provided examples of elements in the claims that are clearly not present in the cited prior art.

Applicant strongly emphasize that one reviewing the prosecution history should not interpret any of the examples Applicant has described herein in connection with distinguishing over the prior art as limiting to those specific features in isolation. Rather, Applicant asserts that it is the combination of elements recited in each of the claims, when each claim is interpreted as a whole, which is patentable. Applicant has emphasized certain features in the claims as clearly not present in the cited references, as discussed above. However, Applicant does not concede that other features in the claims are found in the prior art. Rather, for the sake of simplicity, Applicant is providing examples of why the claims described above are distinguishable over the cited prior art.

Applicant wishes to clarify for the record, if necessary, that the claims have been amended to expedite prosecution and/or explicitly recite that which is already present within the claims as interpreted in view of the specification. Moreover, Applicant reserves the right to pursue the original and/or complimentary subject matter recited in the present claims in a continuation application.

Any claims that have been cancelled are hereby cancelled without prejudice or disclaimer, and Applicant reserves the right to further prosecute these claims in continuing applications. In addition, Applicant has attempted to claim all embodiments disclosed in the present application, and no disclaimer of any embodiments is hereby intended by the presently pending claims.

Any narrowing amendments made to the claims, if any, in the present Amendment are not to be construed as a surrender of any subject matter between the original claims and the

present claims; rather merely Applicant's best attempt at providing one or more definitions of what the Applicant believes to be suitable patent protection. In addition, the present claims provide the intended scope of protection that Applicant is seeking for this application. Therefore, no estoppel should be presumed, and Applicant's claims are intended to include a scope of protection under the Doctrine of Equivalents and/or statutory equivalents, i.e., all equivalents that are substantially the same as the presently claimed invention.

Applicant also traverses any "Official Notice," "Design Choice," "Admitted Prior Art" or other alleged prior art that the Examiner purports is well known with respect to the claimed combination of the present invention. Applicants disagree and request the Examiner to provide a prior art reference describing any of these features that the Examiner has not provided a prior art reference or an affidavit under 37 C.F.R. Section 1.104(d)(2) providing details of why it would have been obvious. In the absence of either, Applicant requests withdrawal of this rejection for these reasons as well.

For all the reasons advanced above, Applicants respectfully submit that the rejections have been overcome and should be withdrawn.

For all the reasons advanced above, Applicant respectfully submits that the Application is in condition for allowance, and that such action is earnestly solicited.

Authorization

The Commissioner is hereby authorized to charge any additional fees, which may be required for this Amendment, or credit any overpayment to Deposit Account No. 08-0219

In the event that an Extension of Time is required, or which may be required in addition to that requested in a petition for an Extension of Time, the Commissioner is requested to grant a petition for that Extension of Time which is required to make this response timely and is hereby authorized to charge any fee for such an Extension of Time or credit any overpayment for an Extension of Time to Deposit Account No. 08-0219.

Respectfully submitted,

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